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Quantum Information Systems is a topic of immense interest not only because of its theoretical beauty but also due to its ground breaking potential to help make quantum computers a reality. Quantum computers can have a wide range of repercussions influencing every aspect of modern life - from internet banking, to secure phone calls, to other privacy issues that we currently take so much for granted. Mathematically, a quantum channel is a completely positive trace preserving map on finite-dimensional space. In the language of quantum information theory, a channel describes the transfer of quantum information, or qubits, from 'Alice' to 'Bob'. The topic has intimate connections with non-commutative functional analysis, in particular, operator space theory. It especially lends itself to undergraduate research because some calculations can be performed by students without graduate level of mathematical sophistication. The topic is interdisciplinary, at the intersection of operator space theory, quantum information theory and cryptology. In this talk we will give a brief overview of this subject and explain how we have used it to motivate students to further study mathematics and to convince them of all the wonderful ways in which mathematics continues to change our world. (Received September 21, 2011)